

Electromagnetic transition form factor of the η meson with WASA-at-COSY

Friday, 3 June 2016 16:10 (0:20)

Collaboration

WASA-at-COSY

Abstract content

In this work we present a study of the Dalitz decay $\eta \rightarrow \gamma e^+ e^-$. The aim of this work is to measure the transition form factor of the η meson. The transition form factor of the η meson describes the electromagnetic structure of the meson. The study of the Dalitz decay helps to calculate the transition form factor of the η meson. When a particle is point-like its decay rate can be calculated within QED. However, the complex structure of the meson modifies its decay rate. The transition form factor is determined by comparing the lepton-antilepton invariant mass distribution with QED. For this study data on proton-proton reaction at a beam energy of 1.4 GeV has been collected with WASA-at-COSY detector at Forschungszentrum Juelich, Germany. In the higher invariant mass region recent theoretical calculations slightly deviate from the fit to the data. We expect better results in the higher invariant mass region than previous measurements. The preliminary results of the analysis will be presented.

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Session Classification : Parallel Session C3